

**SERVICE
MANUAL** **PM350**



marantz

model PM350

Stereophonic Amplifier

MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, MARANTZ Company has created the ultimate in stereo sound. Only original MARANTZ parts can insure that your MARANTZ product will continue to perform to the specifications for which it is famous.

Parts for your MARANTZ stereo are generally available within 72 hours throughout the nation via a toll-free line to our National Parts Depot in California. The sales professionals who take your call immediately refer to their own desk top computer terminal and can quickly determine the availability and price information you require. If for some reason, your order should exceed our available stock, we usually can instantly provide an alternate replacement part or current delivery information. When the order is placed and confirmed, the computer simultaneously generates "hard copy" orders at the distribution center. As hard copies come directly from the computer to the national parts depot, your requested stock is assembled and prepared for shipment and placed on the first available carrier for delivery to you.

ORDERING PARTS

Phone orders will eliminate mail delays, and we encourage the use of this method. If you order by mail, use MARANTZ parts order forms which are available from our National Parts Depot located at the following address:

SUPERSCOPE NATIONAL PARTS DEPARTMENT
20525 Nordhoff Street
Chatsworth, California 91311
Phone: 1-800-423-5108
1-213-998-9333

The following information must be supplied to eliminate delays in processing your order:

1. Complete address.
2. Complete part numbers.
3. Complete description of parts.
4. Model number for which part is required (indicate MARANTZ).
5. Account number (for account customers only).

Direct consumers will be provided with the current retail price quotation on available parts in order to advise them of the cost of the parts and shipping.

OVERSEAS PARTS ORDERING

Parts may also be ordered from the following overseas addresses:

CANADA

Superscope Canada, Ltd.
3710 Nashua Drive
Mississauga
Ontario, Canada L4V1M5

AUSTRALIA

Superscope (Australasia) Pty., Ltd.
32 Cross Street (P.O.Box 604)
Brookvale 2100 N.S.W.
Australia

JAPAN

Marantz Japan, Inc.
3622 Kamitsuruma
Sagamihara Shi
Kanagawa, Japan

EUROPE

Superscope Europe, S.A.
Avenue Leopold III, 2
7120 Perennes-Lez-Binche
Belgium

Marantz France
Rue Louis Armand 9
92600 Asnieres
Hauts-de-Seine
France

Marantz Audio U.K. Ltd.
London Road, 203
Staines
Middlesex
England

Superscope GmbH
Max-Planck-Strass 22
D-6072 Dreieich
West Germany

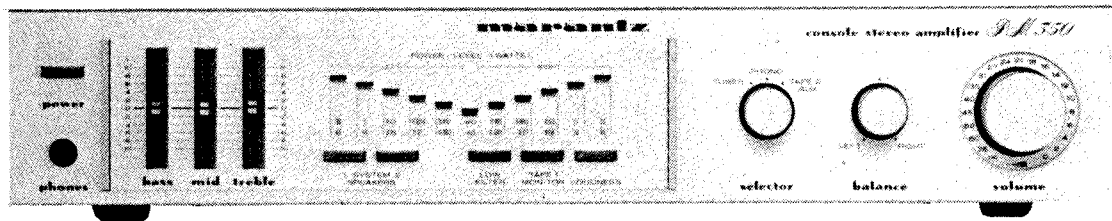
All of the above locations are fully equipped to take care of your total service needs. Because various countries have differing configuration requirements, it is necessary that you contact the service facility in your particular country. In the event that there is no service location listed for your country, please contact the nearest facility for the necessary assistance.

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We sound better.

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MODEL PM 350 STEREOPHONIC AMPLIFIER



1. INTRODUCTION

This service manual was prepared for use by Authorized Warranty Stations and contains service information for the Marantz Model PM350 Stereo Console Amplifier. Servicing information and voltage data included in this manual are intended for use by knowledgeable and experienced personnel only. All instructions should be read carefully. No attempt should be made to proceed without a good understanding of circuitry operation.

The parts list furnishes complete ordering information. Most replacement parts should be ordered from the Marantz Company. However, a simple description is included for parts which can be obtained locally.

2. PRE-AMPLIFIER

Signals from the TUNER and AUX terminals are taken to the SELECTOR SWITCH (SS02).

Signals from the PHONO terminals pass through the phono amplifier (Q401) where they are amplified by 35.5dB and at the same time undergo RIAA equalization, before going to the SELECTOR SWITCH (SS02).

After being selected by the SELECTOR SWITCH, the incoming signals are taken to the TAPE MONITOR SWITCH and TAPE OUT terminals.

Signals which enter from the TAPE IN terminals are taken to the TAPE MONITOR SWITCH.

Signals which are selected by the TAPE MONITOR SWITCH are taken to the BALANCE and VOLUME potentiometers, and then enter the pre-amplifier (QE01). The pre-amplifier has a gain of 18 dB. The signals from the pre-amplifier enter TONE AMP (QE02) and the frequency response is controlled by the BASS, MID and TREBLE controls.

After passing through the pre-amplifier, the signals enter the main amplifier.

3. MAIN AMPLIFIER

The main amplifier contains an 6 dB/OCT type high pass filter network which can be switched in and out of circuit by means of the LOW FILTER switch.

4. TROUBLESHOOTING ANALYSIS

1. Excessive line consumption
 - a. Check for shorted Q801.
 - b. Check for shorted transistor Q729 through Q732.
 - c. Check for open Q709, Q710, R725, R726.
2. No line consumption or zero bias voltage
 - a. Check line cord, fuse, check for shorted Q709, Q710, R725, R726
 - b. Check for open rectifiers Q801 or open L001.
3. High hum and noise level
 - a. Check filter capacitors C801, C802, C807, C808.
 - b. Check transistors Q807, Q808.

5. POWER AMPLIFIER ADJUSTMENT

ADJUSTMENT OF IDLING CURRENT

Connect a DC voltmeter to between emitters Q729 and Q731. Adjust R725 until 11mV is reached. Likewise, adjust Q730, Q732 and R726.

6. POWER LED METER ADJUSTMENT

Connect the speaker terminal output to the rated output voltage (15.5 V, 1 kHz), and then so adjust by RX07 (LCH) that the POWER LED METER 30W LED lights up. Adjust in the same manner by RX08 (RCH).

7. TEST EQUIPMENT REQUIRED FOR SERVICING

Table 1 lists the test equipment required for servicing the Model PM350 Stereo Console Amplifier. The wattmeter, AC voltmeter, and variable autotransformer may be assembled as a test fixture as shown schematically in Figure 1. The load resistors and AC ammeter may be assembled into a second test fixture as shown in Figure 2.

Line Switch	OFF
Variable-line switch	Variable
Wattmeter Switch	ON
Variable Autotransformer	0 V (fully CCW)
Load	8 ohms (0.5 mfd—OFF)
Audio Generator	1 kHz
Output	5 V range
Gain	Minimum
AC Voltmeter	30 V range

8. PERFORMANCE VERIFICATION

TEST PROCEDURE

A. TEST EQUIPMENT

Refer to Table 1 for required test equipment.

B. PRELIMINARY PROCEDURES

1. Make the test setup shown in Figure 1 with the instrument controls set in the following positions:
2. Make sure that connections between the resistive load and the system terminals of the Model PM350 have negligible resistance when compared with the resistance of the load itself. Appreciable resistance in wiring adds to the total load, resulting in inaccurate measurements of output power.
3. Connect amplifier output to load and connect AC cord to line power. Connect shorting plugs to the Phono input jacks of the Model PM350.

Table 1. Test Equipment Required for Servicing

Item	Manufacturer and Model No.	Use
Distortion Analyzer Audio Oscillator AC Voltmeter	Sound Technology Model 1700B	Distortion Measurements Sinewave and squarewave signal source voltage measurements (AC)
Oscilloscope	Tektronix Model T932 Philips Model 3232	Waveform analysis and trouble shooting and ASO alignment
Circuit Tester		Trouble shooting
DC Voltmeter	Fluke Model 8000 "Digital" Simpson Model 313, Triplet Model 801	Voltage measurements (DC)
AC Wattmeter	Simpson Model 1379	Monitors primary power to amplifier
AC Ammeter	Commercial Grade (1 ~ 10 A)	Monitors amplifier output under short circuit condition
Line Voltmeter	Simpson Model 1359	Monitors potential of primary power to amplifier
Variable Autotransformer	Superior Electronic Co., Powerstet Model 116B-10A	Adjusts level of primary power to amplifier
Shorting Plug	Use phono plug with 600 ohm across center pin and shell	Shorts amplifier input to eliminate noise pickup
Output Load (8 ohms, $\pm 0.5\%$ 100 W)	Commercial Grade	Provides 8-ohm load for amplifier output termination
Output Load (4 ohms, $\pm 0.5\%$ 100 W)	Commercial Grade	Provides 4-ohm load for amplifier output termination
Output Load Capacitor (0.5 mfd)	Mylar	Provides capacitive load for instability checks
AC Power Control Box	Optional Item. Fabricate in accordance with Figure 1	Monitors and controls primary power for amplifier
Amplifier Output Load Box	Optional Item. Fabricate in accordance with Figure 2	Provides various amplifier loads and can monitor shorted output

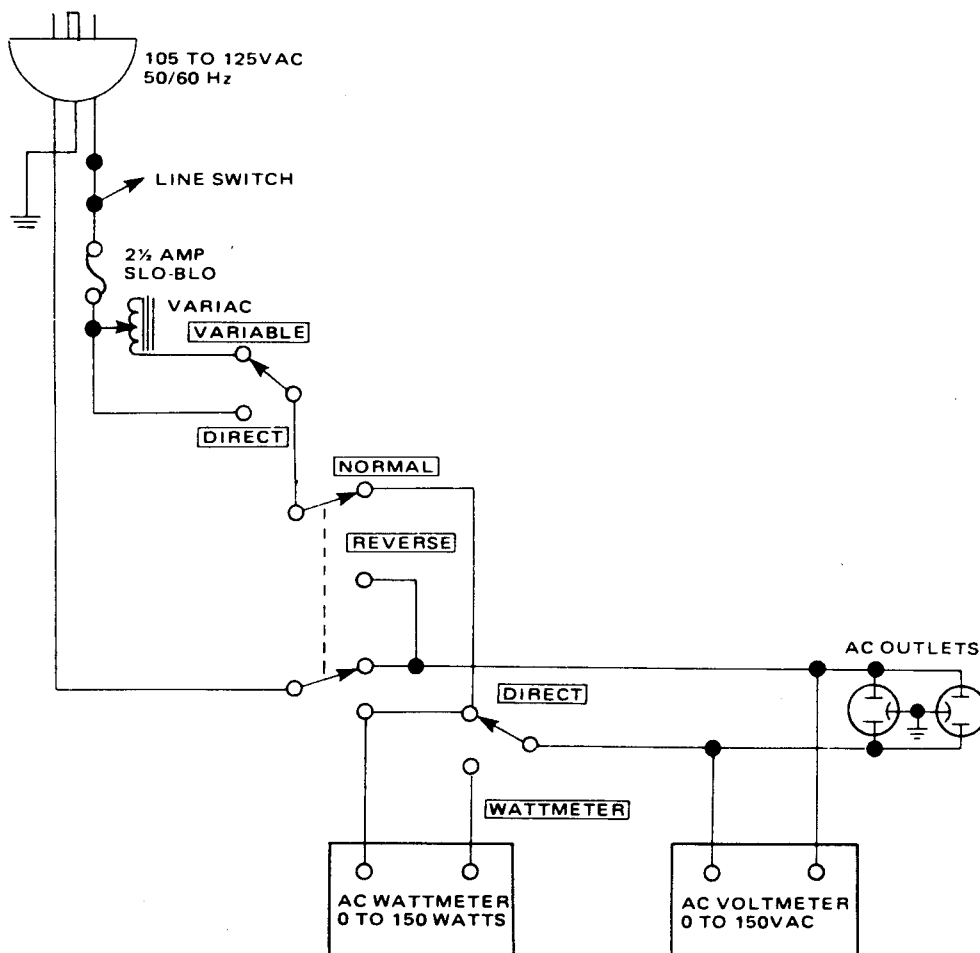


Figure 1. AC Power Control Box Simplified Schematic

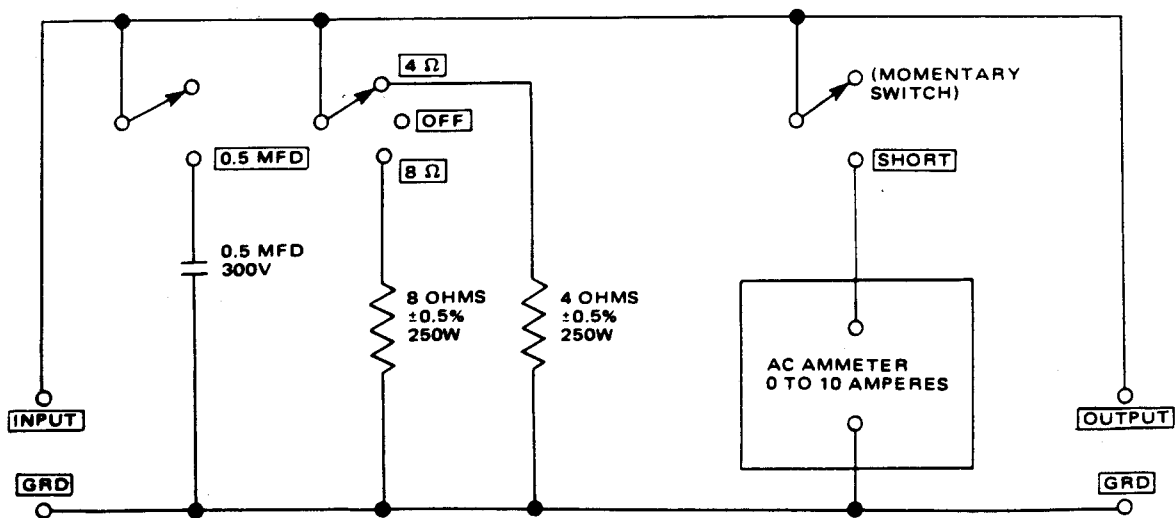


Figure 2. Amplifier Output Load Box Simplified Schematic

C. TOTAL HUM AND NOISE TEST

1. With shorting plugs connected to the Phono input jacks and an 8 ohm resistive load connected across the speaker system output terminals, connect a distortion analyzer across the load.

NOTE:

If the distortion analyzer does not contain a built-in voltmeter, an AC VTVM may be substituted.

2. Set the distortion analyzer controls for voltage measurements and apply power to the amplifier. Set the volume control fully CCW. Set the SELECTOR switch to PHONO.
3. If the distortion analyzer indicates more than 2.0 mV refer to the trouble analysis section of this manual.
4. Set the volume control fully CW. If the distortion analyzer indicates more than 20 mV, refer to the trouble analysis section of this manual.

D. MAXIMUM POWER OUTPUT

1. Connect the audio oscillator to the AUX input. Set audio oscillator frequency to 1 kHz. Set SELECTOR switch to AUX.
2. With the distortion analyzer connected across the output load (8-ohm), set the analyzer on the 30 VAC scale.
3. Turn the analyzer on and increase the audio oscillator output to 150 mV. The AC VTVM should read 15.5 VAC or more.

E. HARMONIC DISTORTION TEST

1. Set the frequency of the audio oscillator and the distortion analyzer to 20 kHz.
2. Set the controls of the analyzer for voltage measurement on the 30 volt scale.
3. Adjust the audio oscillator output level until the analyzer meter indicates 15.5 VAC.
4. Switch the distortion analyzer to Set Level and adjust SENSITIVITY for full scale reading on 0 ~ 0.3% scale.
5. Measure the total harmonic distortion with the analyzer and verify it is less than 0.05%.

NOTE:

Any parasitic oscillation in the amplifier will be displayed on the oscilloscope when capacitance is switched into the load.

6. Switch the distortion analyzer back to SET LEVEL. (Do not readjust sensitivity of analyzer.)
7. Change the frequency of the audio oscillator and distortion analyzer to 1 kHz. Adjust audio oscillator output for a full scale reading on the 0 ~ 1% scale.
8. Measure the distortion, verifying it is no greater than 0.05%.
9. Repeat steps 7 and 8, changing frequency to 20 Hz. Distortion should be no more than 0.05%.
10. Check for parasitic oscillation; there should be none.

Note on safety: The parts marked with  are important parts on the safety. Please use the parts having the designated parts number without fail.

9. VOLTAGE CONVERSION

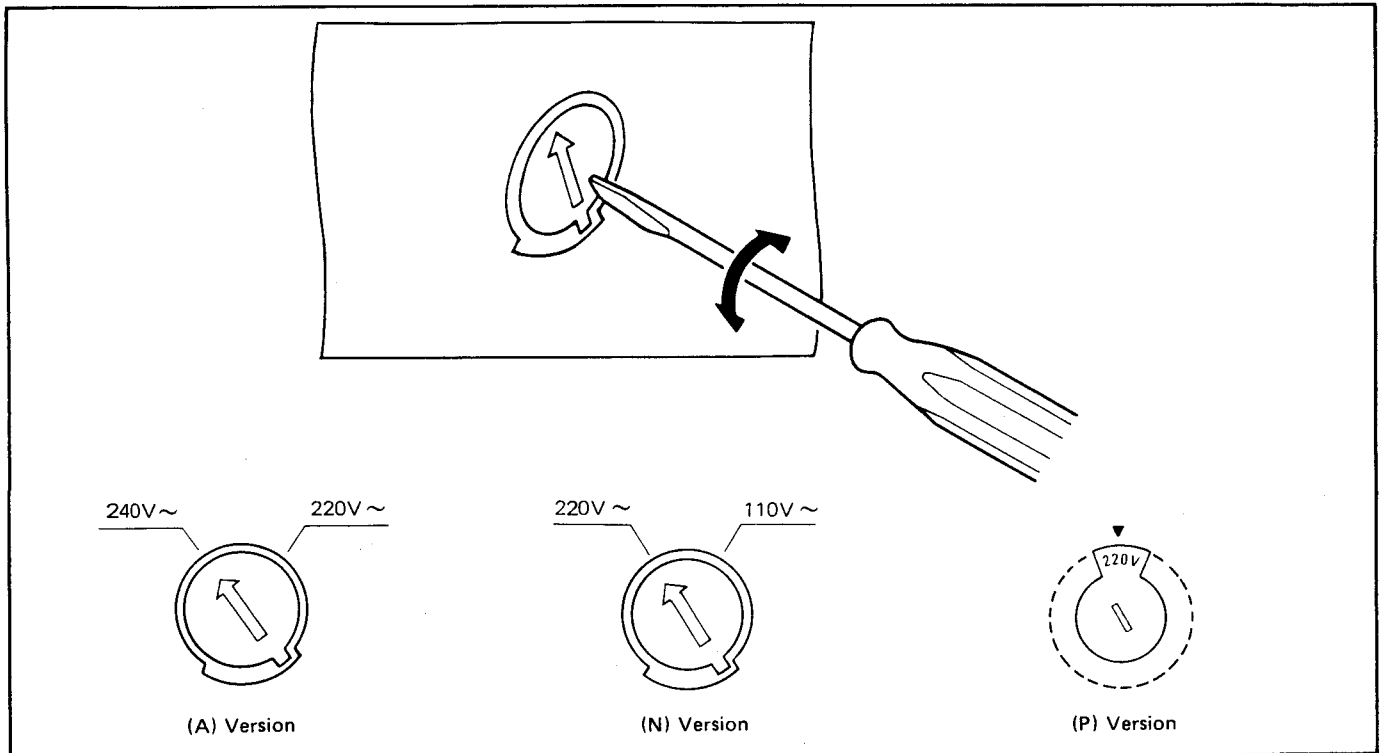
• EUROPEAN MODEL ONLY

To convert the unit to a different power source voltage, change the position as illustrated in the drawing below.

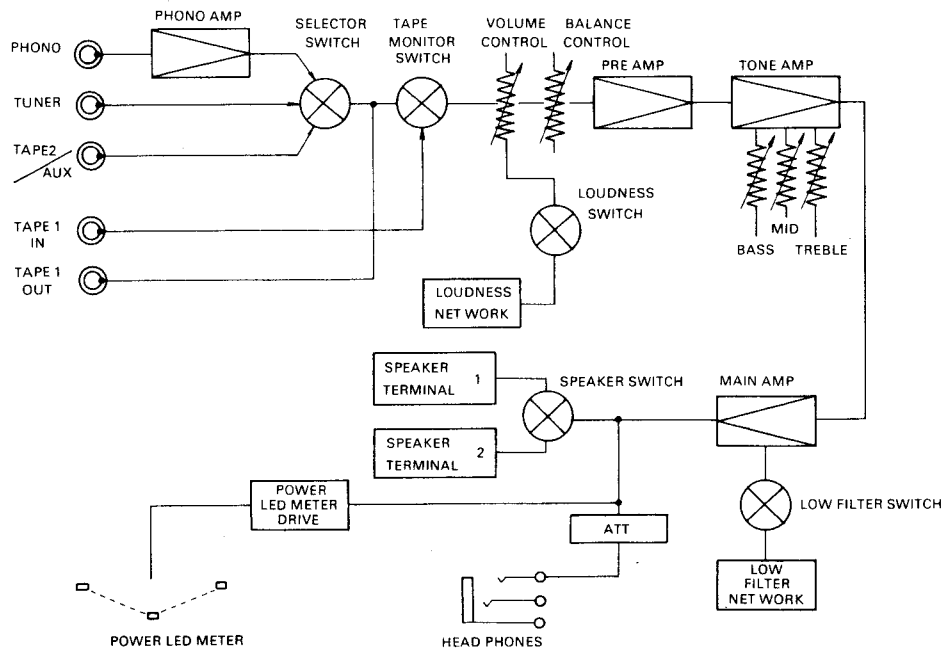
CAUTION

DISCONNECT POWER SUPPLY CORD FROM AC OUT-LET BEFORE CONVERTING VOLTAGE.

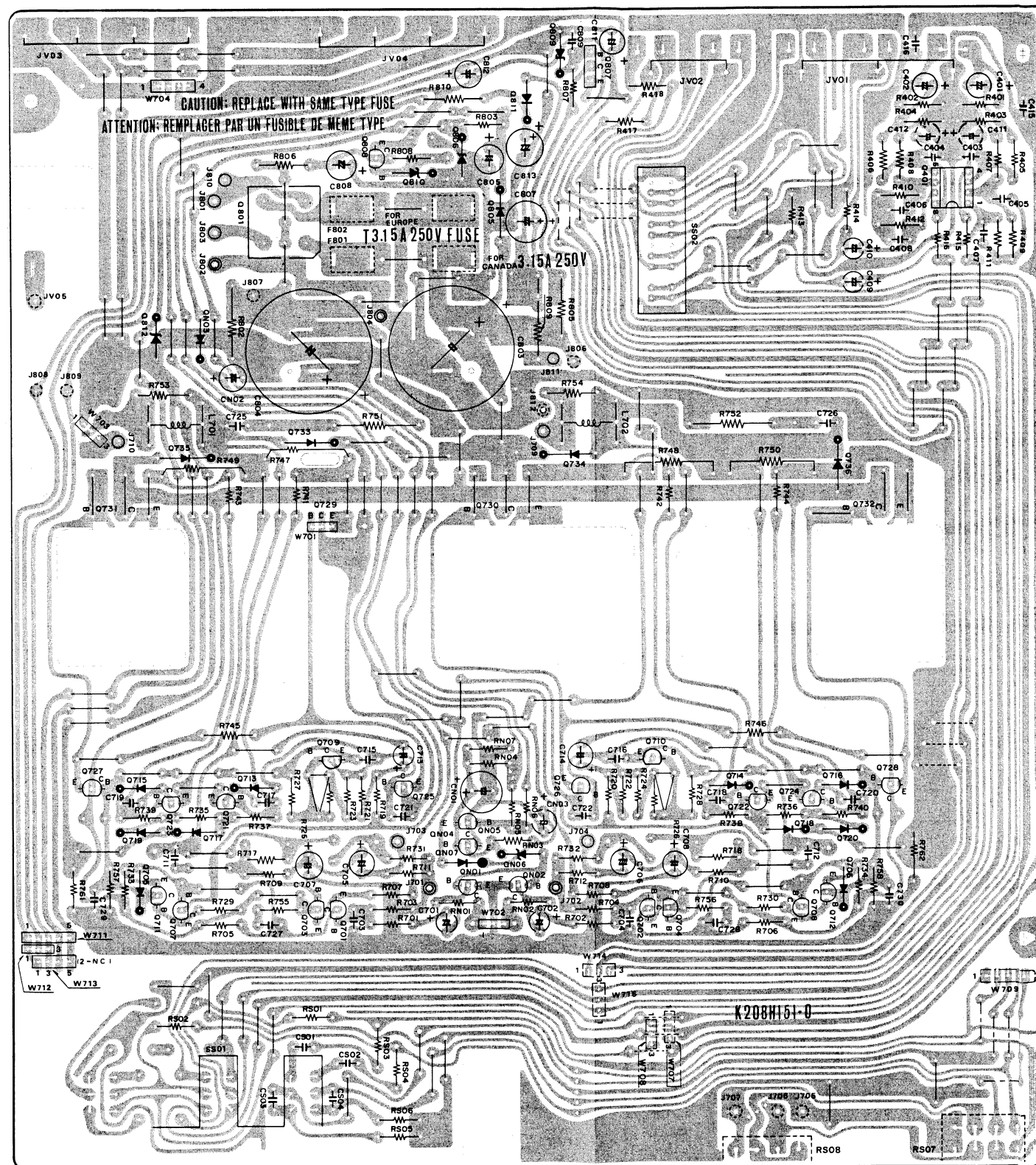
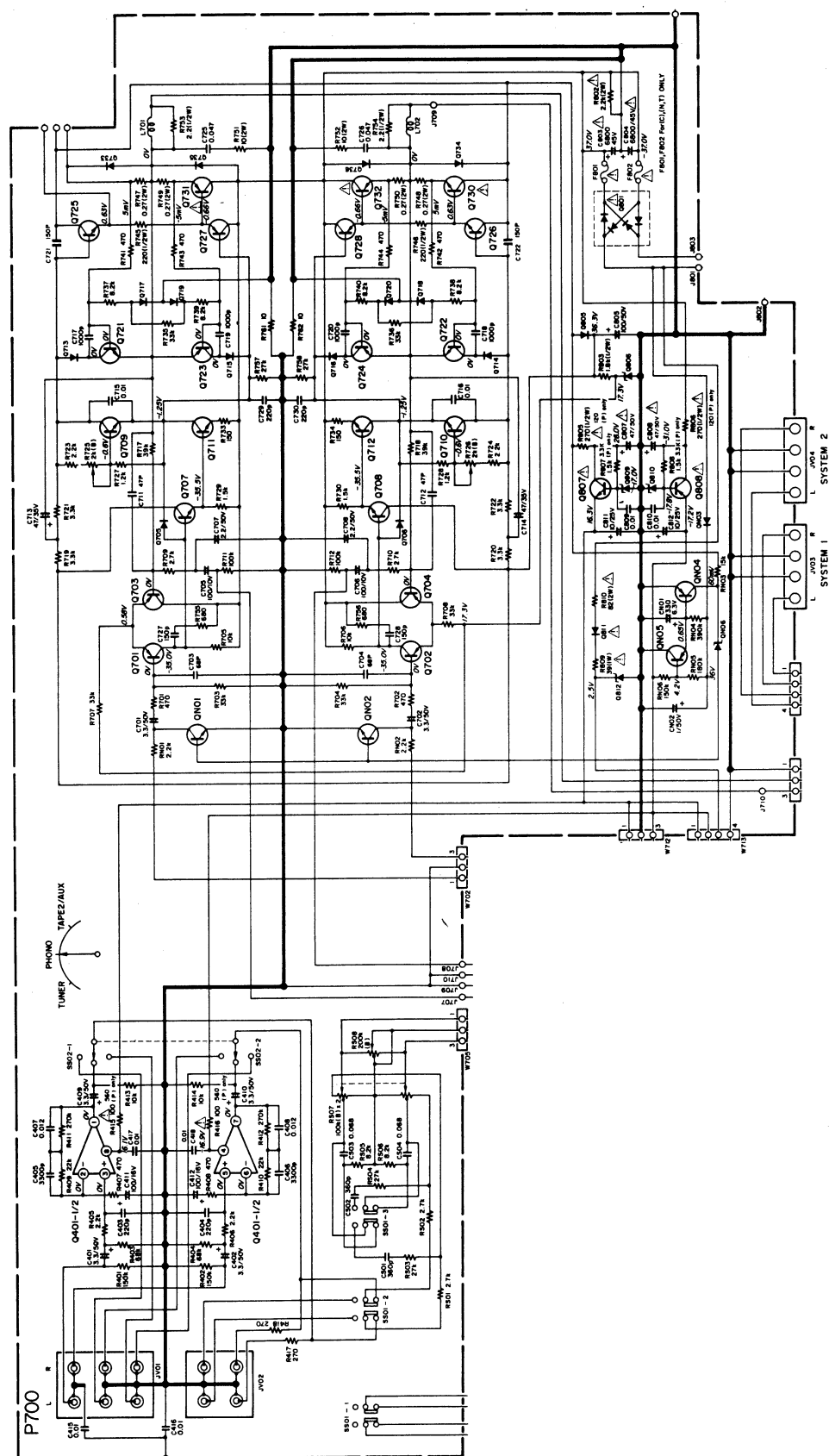
Voltage Conversion Chart



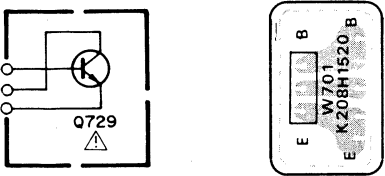
10. BLOCK DIAGRAM



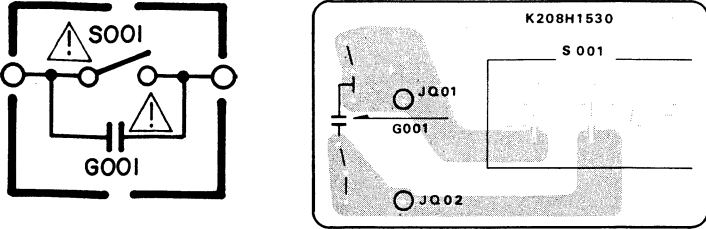
✓



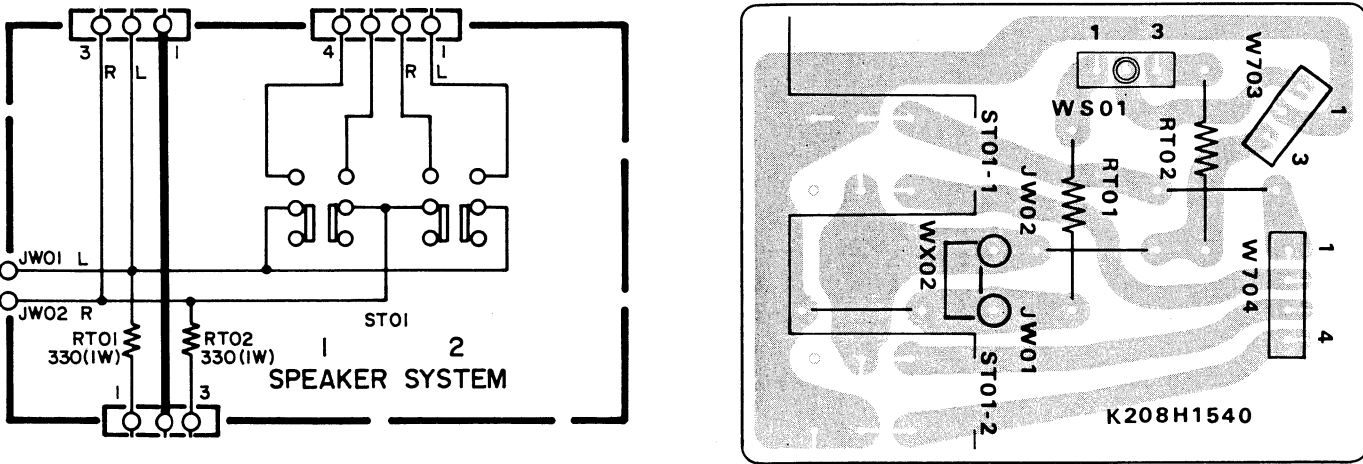
11.2 Power Tr. Assembly (P701) Schematic Diagram and Component Locations



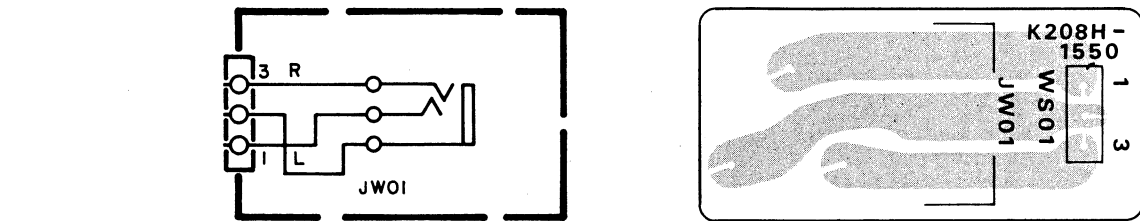
11.3 AC. Switch Assembly (P000) Schematic Diagram and Component Locations



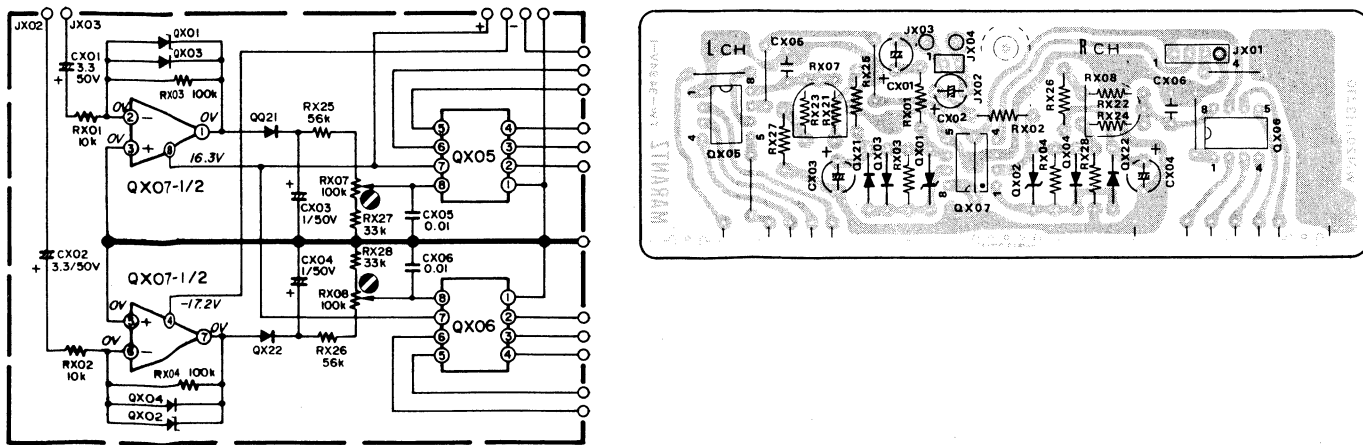
11.4 SP. Switch Assembly (PT00) Schematic Diagram and Component Locations



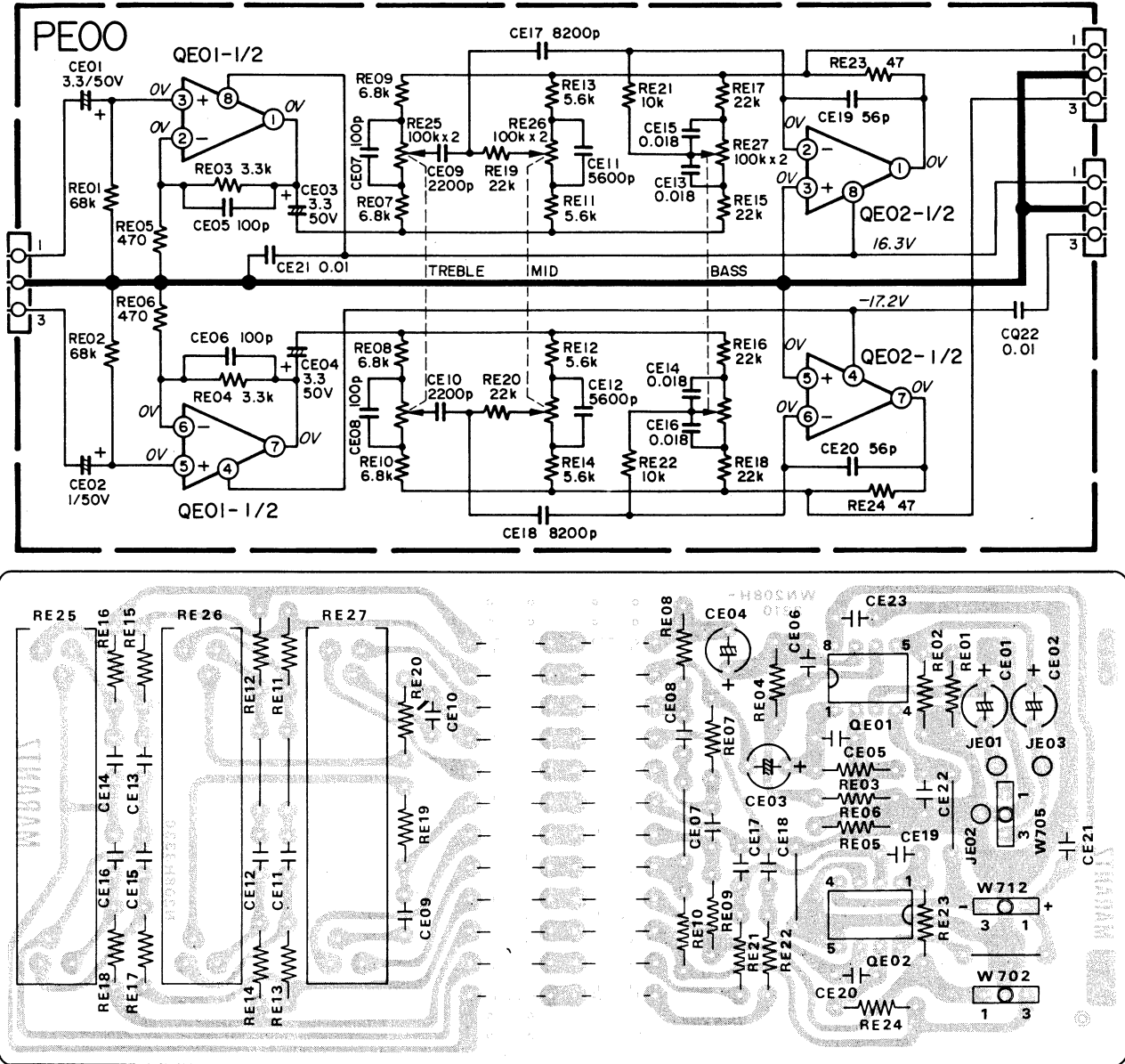
11.5 Head Phone Assembly (PW00) Schematic Diagram and Component Locations



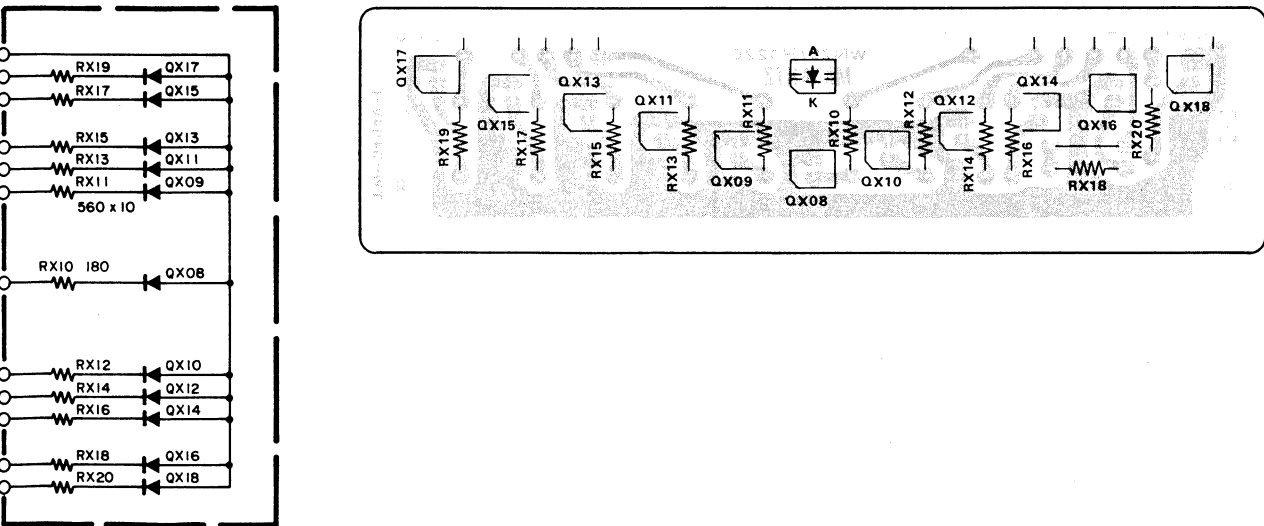
11.6 Tone Control Assembly (PE00) Schematic Diagram and Component Locations



11.7 LED Level Meter Drive Assembly (PX01) Schematic Diagram and Component Locations

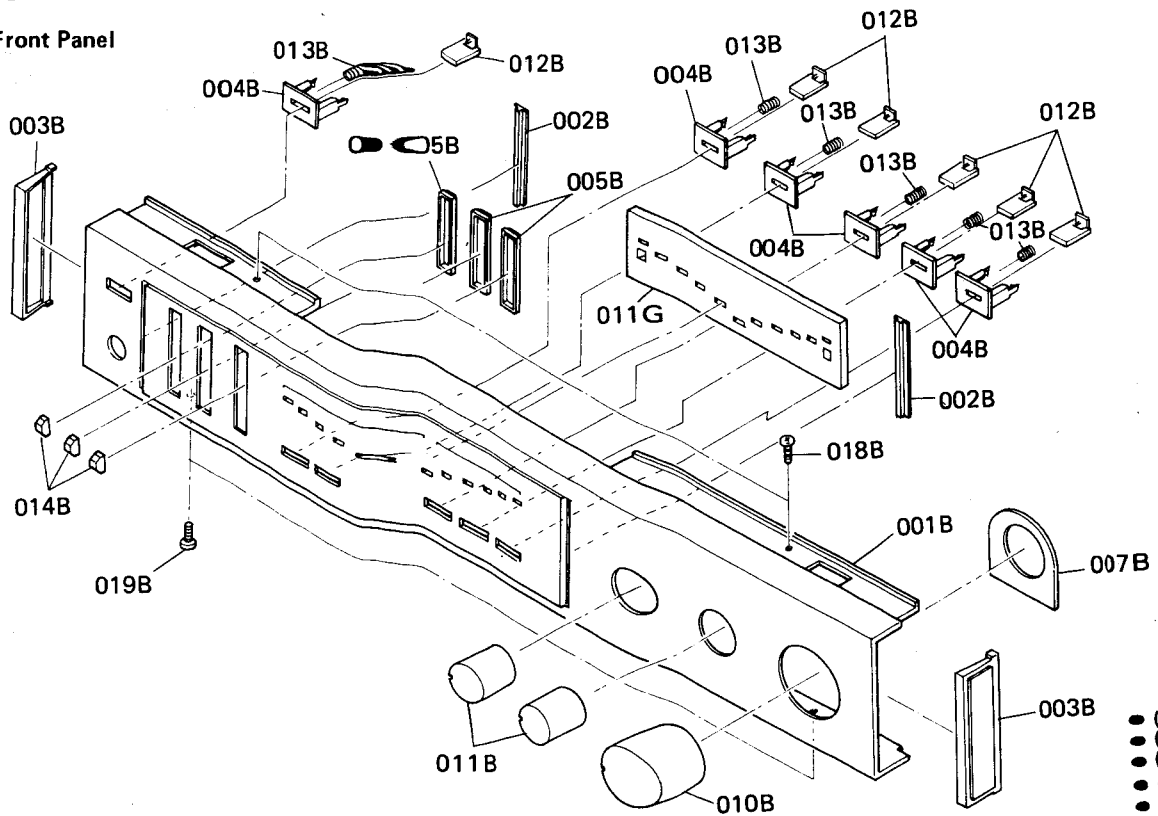


11.8 LED Level Meter Assembly (PX02) Schematic Diagram and Component Locations



12. EXPLODED VIEW AND PARTS LIST

• [C01-99] Front Panel

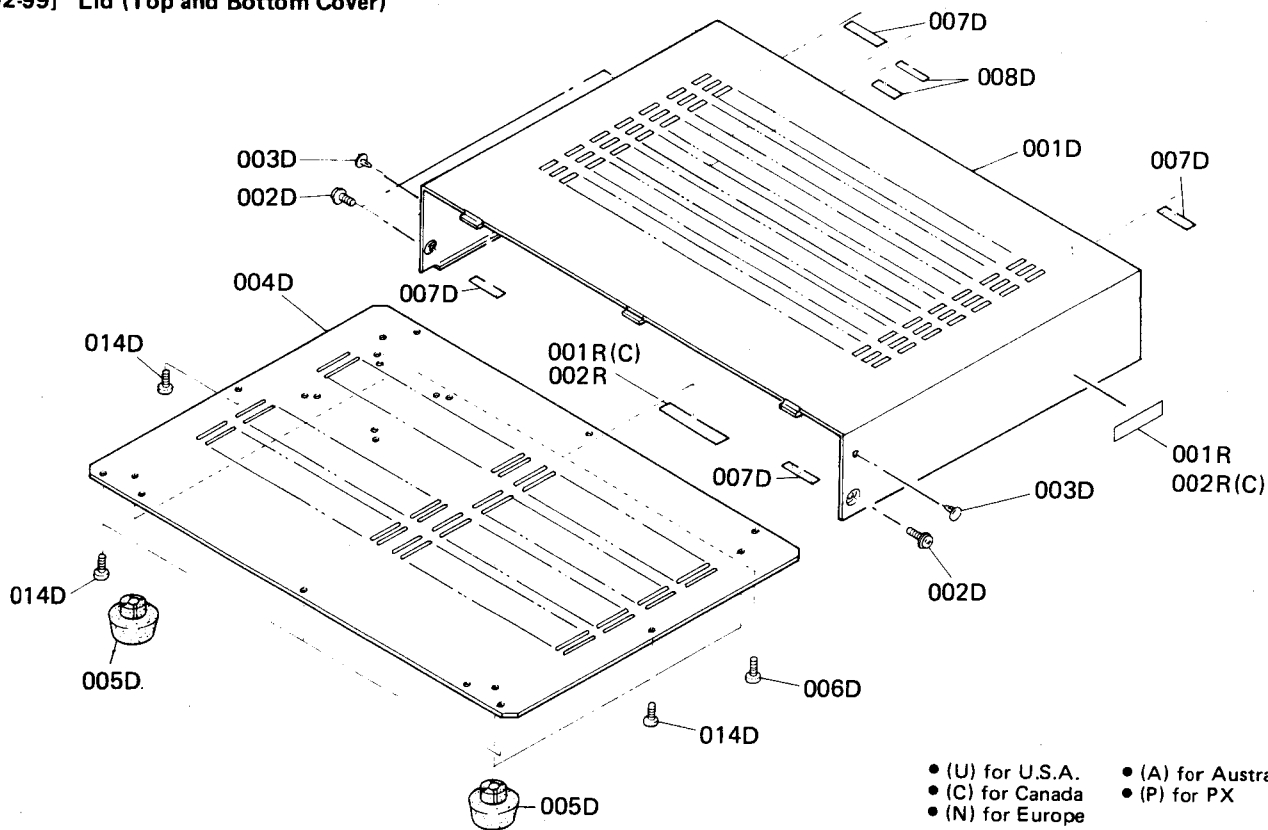


- (U) for U.S.A.
- (C) for Canada
- (N) for Europe
- (A) for Australia
- (P) for PX

REF. DESIG.	QTY					PART NO.	DESCRIPTION
	U	C	N	A	P		
A	1	1	1	1	1	208H063400	Front Panel Assembly
001B	1	1	1	1	1	208H063010	Escutcheon
002B	2	2	2	2	2	403H063020	Escutcheon
003B	2	2	2	2	2	403H067010	Cap
004B	6	6	6	6	6	403H259010	Bushing
005B	3	3	3	3	3	001H259110	Bushing
007B	1	1	1	1	1	208H063020	Escutcheon
012B	6	6	6	6	6	403H154010	Knob
013B	6	6	6	6	6	403H115010	Spring
011G	1	1	1	1	1	208H118010	Spacer

REF. DESIG.	QTY					PART NO.	DESCRIPTION
	U	C	N	A	P		
010B	1	1	1	1	1	208H154010	Knob
011B	2	2	2	2	2	208H154020	Knob
014B	3	3	3	3	3	208H154050	Knob
018B	2	2	2	2	2	51280306B0	B.H.Tapped Screw B3x6
019B	2	2	2	2	2	51280306B0	B.H.Tapped Screw B3x6

- [C02-99] Lid (Top and Bottom Cover)

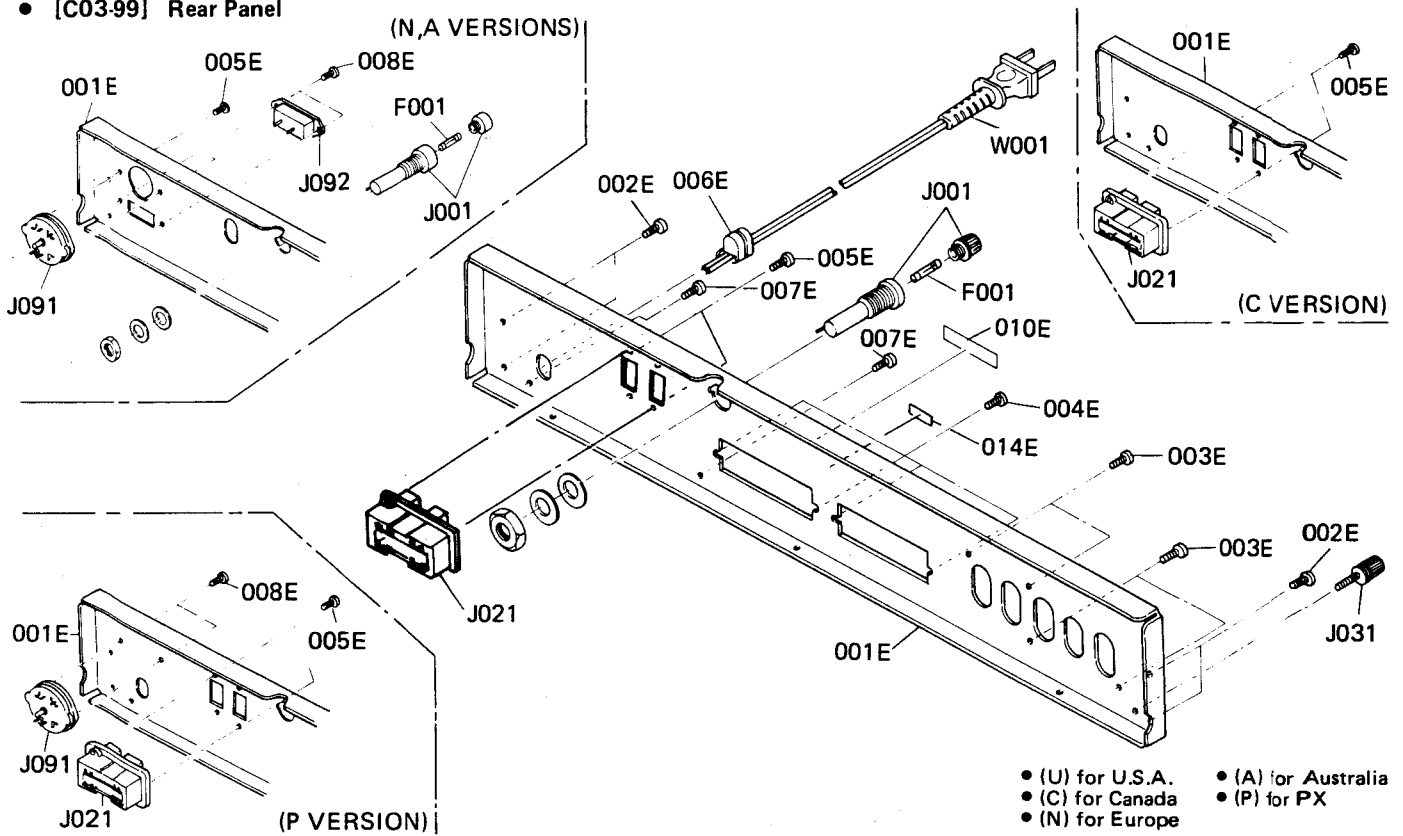


REF. DESIG.	QTY					PART NO.	DESCRIPTION
	U	C	N	A	P		
001D	1	1	1	1	1	208H257010	Lid, Top Cover
002D	4	4	4	4	4	51260408Z0	B.T. Screw B4x8
003D	2	2	2	2	2	2991259010	Bushing
004D	1	1	1	1	1	208H257020	Lid, Bottom Cover
005D	4	4	4	4	4	304H057010	Leg
006D	3	3	3	3	3	51280308B0	B.H.Tapped ScrewB3x8
007D	4	4	4	4	4	2965118010	Spacer
008D	2	2	2	2	2	208H056010	Buffer
014D	5	5	5	5	5	51280308B0	B.H.Tapped ScrewB3x8

REF. DESIG.	Q'TY					PART NO.	DESCRIPTION
	U	C	N	A	P		
001R	1					2932861010	Label
001R		1				2911861110	Label
001R			1	1	1	2932861010	Label
002R	1		1	1	1	2578861010	Label
002R		1				2911861140	Label

- **[C03-99] Rear Panel**

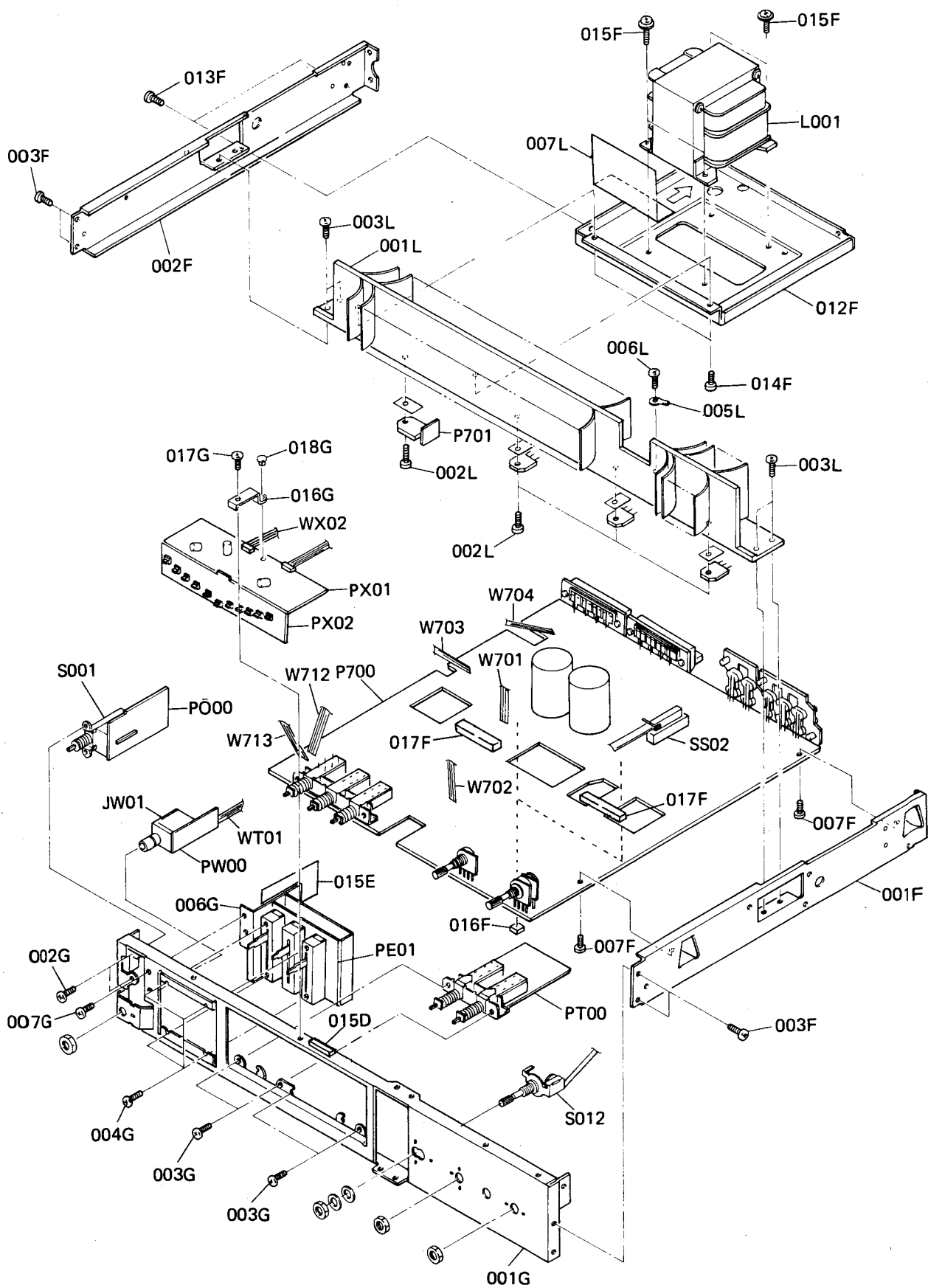
(N,A VERSIONS)



- (U) for U.S.A.
- (C) for Canada
- (N) for Europe
- (A) for Australia
- (P) for PX

REF. DESIG.	Q'TY					PART NO.	DESCRIPTION	REF. DESIG.	Q'TY					PART NO.	DESCRIPTION
	U	C	N	A	P				U	C	N	A	P		
001E	1					208H160210	Bracket, Rear Panel	△ F001	1					FS10250500	Fuse, 2.5A 250V
001E		1				208H160250	Bracket, Rear Panel	△ F001		1			1	FS10250600	Fuse, 2.5A 250V
001E			1			208H160280	Bracket, Rear Panel	△ F001			1	1		FS10080800	Fuse, T800MA
001E				1		208H160240	Bracket, Rear Panel								
001E					1	208H160260	Bracket, Rear Panel	J001	1					YJ08000310	Jack, Fuse Holder
002E	4	4	4	4	4	51280308U0	B.H.Tapped Screw B3x8	J001		1			1	YJ08000300	Jack, Fuse Holder
003E	4	4	4	4	4	51280308U0	B.H.Tapped Screw B3x8	J001			1	1		YJ08000290	Jack, Fuse Holder
004E	4	4	4	4	4	51280308U0	B.H.Tapped Screw B3x8	△ J021	1	1				YJ04000740	Jack, AC Outlet
005E	2	2	2	2	2	51280308U0	B.H.Tapped Screw B3x8	△ J021					1	YJ04000750	Jack, AC Outlet
006E	1	1			1	1455259030	Bushing	J031	1	1	1	1	1	YL03010250	Terminal, Ground
								△ J091			1			BY05060040	Voltage Selector
007E	2	2	2	2	2	51280308U0	B.H.Tapped Screw B3x8	△ J091				1		BY05030040	Voltage Selector
008E			2	2	2	51280308U0	B.H.Tapped Screw B3x8	△ J091					1	BY05080010	Voltage Selector
010E	1	1	1	1	1	2112265010	Indicator	△ J092			1	1		YP04000590	Plug, Inlet
014E			1			4581861010	Label								
								△ W001	1	1				YC01900070	A.C. Power Cord
								△ W001			1			ZC01805030	A.C. Power Cord
								△ W001				1		ZC02006030	A.C. Power Cord
								△ W001				1		YC01800190	A.C. Power Cord

- [P01-99] Front Chassis and General Parts

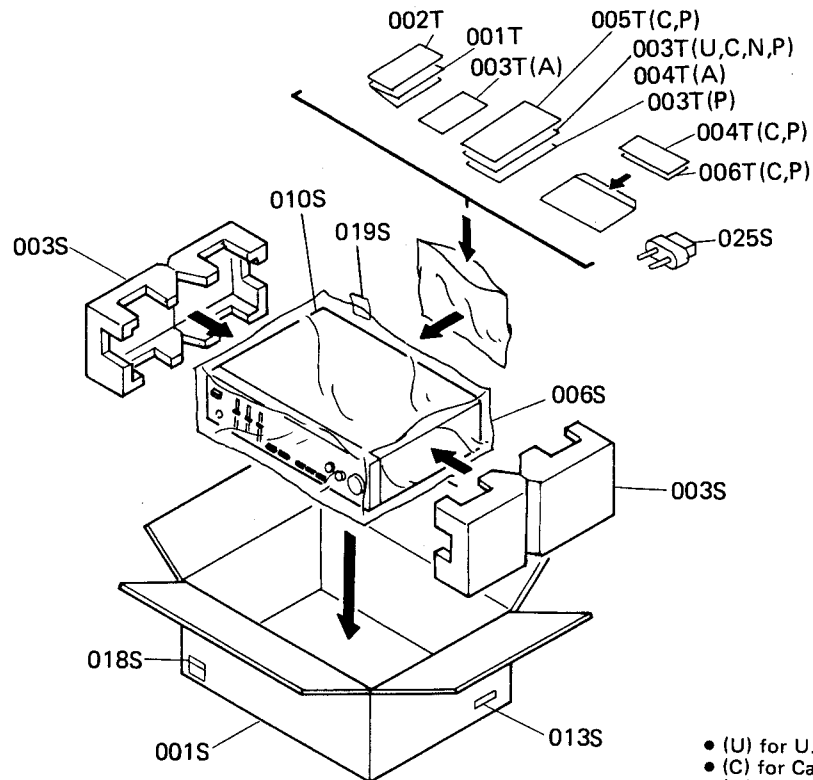


- (U) for U.S.A.
- (C) for Canada
- (N) for Europe
- (A) for Australia
- (P) for PX

REF. DESIG.	Q'TY					PART NO.	DESCRIPTION
	U	C	N	A	P		
015D	1	1	1	1	1	208H056010	Buffer
015E	1	1	1	1	1	208H120010	Insulator
001F	1	1	1	1	1	208H126010	Stay, Right
002F	1	1	1	1	1	208H126020	Stay, Left
003F	4	4	4	4	4	51280308B0	B.H.Tapped ScrewB3x8
007F	2	2	2	2	2	51260308B0	B.T. Screw B3x8
012F	1	1	1	1	1	208H004010	Table
013F	2	2	2	2	2	51280308B0	B.H.Tapped ScrewB3x8
014F	2	2	2	2	2	51260308B0	B.T. Screw B3x8
015F	4	4	4	4	4	51570406B0	B.H.Tapped ScrewB4x6
016F	2	2	2	2	2	2147056010	Buffer
017F	2	2	2	2	2	208H118020	Spacer
001G	1	1	1	1	1	208H160010	Bracket, Front Chassis
002G	2	2	2	2	2	51100306A9	B.H.M. Screw B3x6
003G	4	4	4	4	4	51100306A9	B.H.M. Screw B3x6
004G	4	4	4	4	4	51100204A0	B.H.M. Screw B2x4
006G	1	1	1	1	1	208H109010	Shield
007G	1	1	1	1	1	51100306A9	B.H.M. Screw B3x6
016G	1	1	1	1	1	208H160010	Bracket
017G	1	1	1	1	1	51280308B0	B.H.Tapped ScrewB3x8
018G	1	1	1	1	1	2276005050	Clamper
001L	1	1	1	1	1	208H267010	Heat Sink
002L	4	4	4	4	4	5126010B0	B.T. Screw B3x10
003L	4	4	4	4	4	51280308B0	B.H.Tapped ScrewB3x8
005L	1	1	1	1	1	61030039W0	Lug
006L	1	1	1	1	1	51280308B0	B.H.Tapped ScrewB3x8
007L	1	1	1	1	1	208H109020	Shield

REF. DESIG.	Q'TY					PART NO.	DESCRIPTION
	U	C	N	A	P		
△L001	1					TS17619010	Power Transformer
△L001		1				TS17619020	Power Transformer
△L001			1			TS17620030	Power Transformer
△L001				1		TS17620040	Power Transformer
△L001					1	TS17620050	Power Transformer
△S001	1	1				SP01010420	Push Switch, Power
△S001			1	1		SP01010390	Push Switch, Power
△S001					1	SP01010430	Push Switch, Power
S012	1	1	1	1	1	SR00030050	Rotary Switch
SS02	1	1	1	1	1	SS04040040	Slide Switch
ST01	1	1	1	1	1	YU03180260	Jumper Lead
WT01	1	1	1	1	1	YU03180260	Jumper Lead
WX02	1	1	1	1	1	YU02120240	Jumper Lead
W701	1	1	1	1	1	YU03180240	Jumper Lead
W702	1	1	1	1	1	YU03280260	Jumper Lead
W703	1	1	1	1	1	YU03180240	Jumper Lead
W704	1	1	1	1	1	YU04280240	Jumper Lead
W712	1	1	1	1	1	YU03180260	Jumper Lead
W713	1	1	1	1	1	YU04100240	Jumper Lead
JW01	1	1	1	1	1	YJ01001400	Jack, Head Phone

• [H01-99] Packing Materials



• (U) for U.S.A. • (A) for Australia
• (C) for Canada • (P) for PX
• (N) for Europe

REF. DESIG.	QTY					PART NO.	DESCRIPTION
	U	C	N	A	P		
001S	1	1				208H801010	Packing Case
001S			1	1		208H801020	Packing Case
001S					1	208H801030	Packing Case
003S	2	2	2	2	2	001H809010	Cushion
006S	1	1	1	1	1	9090909040	Polyethylene Sheet
010S	1	1	1	1	1	2918107280	Sheet
013S	2					9526019010	Serial No. Card
013S		2				9526019020	Serial No. Card
013S			2			9526019060	Serial No. Card
013S				2		9526019030	Serial No. Card
013S					4	9526019050	Serial No. Card
018S		2				9510901020	Label
019S			1			2731821010	Silicagel
025S					1	YJ04000240	Jack

REF. DESIG.	QTY					PART NO.	DESCRIPTION
	U	C	N	A	P		
001T	1			1		207H851010	Instruction
001T		1	1		1	207H851310	Instruction
002T	1			1		208H851020	Instruction
002T		1				208H851220	Instruction
002T			1		1	208H851320	Instruction
003T	1					2818854020	Guarantee Card
003T		1				2818854040	Guarantee Card
003T			1			208H856010	Circuit Diagram
003T				1		2205851040	Instruction
003T					1	2818854010	Guarantee Card
004T		1				2918813010	Envelope
004T				1		9631000090	Guarantee Card
004T					1	2713813010	Envelope
005T		1			1	9630000180	Guarantee Card
006T		1				965000050	S. Station Card
006T				1		965000010	S. Station Card

12. ELECTRICAL PARTS LIST

• (U) for U.S.A. • (A) for Australia
• (C) for Canada • (P) for PX
• (N) for Europe

REF. DESIG.	QTY					PART NO.	DESCRIPTION
	U	C	N	A	P		
P700	1	1	1	1	1	YK208H1510	P700-MAIN AMP
	1	1	1	1	1	ZZ208H1510	CIRCUIT BOARD
	1	1	1	1	1	ZZ208H2510	P.W. Board, Main Amp
	1	1	1	1	1	ZZ208H8510	P.W. Board Assembly
	1	1	1	1	1	ZZ208H8510	P.W. Board Assembly
P700-CAPACITORS							
C401	1	1	1	1	1	EA33055030	Elect 3.3μF 50V
C402	1	1	1	1	1	EA33055030	Elect 3.3μF 50V
C403	1	1	1	1	1	DK16221300	Ceramic 220pF ±10%
C404	1	1	1	1	1	DK16221300	Ceramic 220pF ±10%
C405	1	1	1	1	1	DF16332300	Film 3300pF ±10%
C406	1	1	1	1	1	DF16332300	Film 3300pF ±10%
C407	1	1	1	1	1	DF16123300	Film 0.012μF±10%
C408	1	1	1	1	1	DF16123300	Film 0.012μF±10%
C409	1	1	1	1	1	EA33505030	Elect 3.3μF 50V
C410	1	1	1	1	1	EA33505030	Elect 3.3μF 50V
C411	1	1	1	1	1	EA10701630	Elect 100μF 16V
C412	1	1	1	1	1	EA10701630	Elect 100μF 16V
C415	1	1	1	1	1	DK17103300	Ceramic 0.01μF ±20%
C416	1	1	1	1	1	DK17103300	Ceramic 0.01μF ±20%
C417	1	1	1	1	1	DK18103300	Ceramic 0.01μF
C418	1	1	1	1	1	DK18103300	Ceramic 0.01μF
C701	1	1	1	1	1	EA33505030	Elect 3.3μF 50V
C702	1	1	1	1	1	EA33505030	Elect 3.3μF 50V
C703	1	1	1	1	1	DD15680300	Ceramic 68pF ±5%
C704	1	1	1	1	1	DD15680300	Ceramic 68pF ±5%
C705	1	1	1	1	1	EA10701030	Elect 100μF 10V
C706	1	1	1	1	1	EA10701030	Elect 100μF 10V
C707	1	1	1	1	1	EA22505030	Elect 2.2μF 50V
C708	1	1	1	1	1	EA22505030	Elect 2.2μF 50V
C711	1	1	1	1	1	DD15470300	Ceramic 47pF ±5%
C712	1	1	1	1	1	DD15470300	Ceramic 47pF ±5%
C713	1	1	1	1	1	EA47603530	Elect 47μF 35V
C714	1	1	1	1	1	EA47603530	Elect 47μF 35V
C715	1	1	1	1	1	DF17103300	Film 0.01μF ±20%
C716	1	1	1	1	1	DF17103300	Film 0.01μF ±20%
C717	1	1	1	1	1	DF17102300	Film 0.001μF±20%
C718	1	1	1	1	1	DF17102300	Film 0.001μF±20%
C719	1	1	1	1	1	DF17102300	Film 0.001μF±20%
C720	1	1	1	1	1	DF17102300	Film 0.001μF±20%
C721	1	1	1	1	1	DK16151510	Ceramic 150pF ±10%
C722	1	1	1	1	1	DK16151510	Ceramic 150pF ±10%
C725	1	1	1	1	1	DF16473540	Film 0.047μF±10%
C726	1	1	1	1	1	DF16473540	Film 0.047μF±10%
C727	1	1	1	1	1	DK16151300	Ceramic 150pF ±10%
C728	1	1	1	1	1	DK16151300	Ceramic 150pF ±10%
C729	1	1	1	1	1	DK16221300	Ceramic 220pF ±10%
C730	1	1	1	1	1	DK16221300	Ceramic 220pF ±10%
△C803	1	1	1	1	1	EB68804520	Elect 6800μF 45V
△C804	1	1	1	1	1	EB68804520	Elect 6800μF 45V
C805	1	1	1	1	1	EA10705030	Elect 100μF 50V
△C807	1	1	1	1	1	EA47605030	Elect 47μF 50V
△C808	1	1	1	1	1	EA47605030	Elect 47μF 50V
C809	1	1	1	1	1	DK18103320	Ceramic 0.01μF
C811	1	1	1	1	1	EA10602530	Elect 10μF 25V
C812	1	1	1	1	1	EA10602530	Elect 10μF 25V
CN01	1	1	1	1	1	EA33700630	Elect 330μF 6.3V
CN02	1	1	1	1	1	EA10505030	Elect 1μF 50V
CN03	1	1	1	1	1	EA33605030	Elect 33μF 50V

REF. DESIG.	QTY					PART NO.	DESCRIPTION
	U	C	N	A	P		
CS01	1	1	1	1	1	DK16271300	Ceramic 270pF ±10%
CS02	1	1	1	1	1	DK16271300	Ceramic 270pF ±10%
CS03	1	1	1	1	1	DF16683300	Film 0.068μF±10%
CS04	1	1	1	1	1	DF16683300	Film 0.068μF±10%
P700-RESISTORS (All Resistors are ±5% and ¼W)							
R401	1	1	1	1	1	GD05154140	150kΩ
R402	1	1	1	1	1	GD05154140	150kΩ
R403	1	1	1	1	1	GD05683140	68kΩ
R404	1	1	1	1	1	GD05683140	68kΩ
R405	1	1	1	1	1	GD05222140	2.2kΩ
R406	1	1	1	1	1	GD05222140	2.2kΩ
R407	1	1	1	1	1	GD05471140	470Ω
R408	1	1	1	1	1	GD05471140	470Ω
R409	1	1	1	1	1	GD05223140	22kΩ
R410	1	1	1	1	1	GD05274140	270kΩ
R411	1	1	1	1	1	GD05274140	270kΩ
R412	1	1	1	1	1	GD05274140	270kΩ
R413	1	1	1	1	1	GD05103140	10kΩ
R414	1	1	1	1	1	GD05103140	10kΩ
△R415	1	1	1	1	1	GG05101140	100Ω
△R415	1	1	1	1	1	GD05561140	560Ω
△R416	1	1	1	1	1	GG05101140	100Ω
△R416	1	1	1	1	1	GD05561140	560Ω
R417	1	1	1	1	1	GD05271140	270Ω
R418	1	1	1	1	1	GD05271140	270Ω
R701	1	1	1	1	1	GD05471140	470Ω
R702	1	1	1	1	1	GD05471140	470Ω
R703	1	1	1	1	1	GD05333140	33kΩ
R704	1	1	1	1	1	GD05333140	33kΩ
R705	1	1	1	1	1	GD05103140	10kΩ
R706	1	1	1	1	1	GD05103140	10kΩ
R707	1	1	1	1	1	GD05333140	33kΩ
R708	1	1	1	1	1	GD05333140	33kΩ
R709	1	1	1	1	1	GD05272140	2.7kΩ
R710	1	1	1	1	1	GD05272140	2.7kΩ
R711	1	1	1	1	1	GD05104140	100kΩ
R712	1	1	1	1	1	GD05104140	100kΩ
R717	1	1	1	1	1	GD05393140	39kΩ
R718	1	1	1	1	1	GG05393140	39kΩ
R719	1	1	1	1	1	GG05332140	3.3kΩ
R720	1	1	1	1	1	GG05332140	3.3kΩ
R721	1	1	1	1	1	GD05332140	3.3kΩ
R723	1	1	1	1	1	GD05222140	2.2kΩ
R724	1	1	1	1	1	GD05222140	2.2kΩ
R725	1	1	1	1	1	RA02020180	Trimming 2kΩ
R726	1	1	1	1	1	RA02020180	Trimming 2kΩ
R727	1	1	1	1	1	GD05122140	1.2kΩ
R728	1	1	1	1	1	GD05122140	1.2kΩ
R729	1	1	1	1	1	GG05152140	1.5kΩ
R730	1	1	1	1	1	GG05152140	1.5kΩ
R733	1	1	1	1	1	GG05151140	150Ω
R734	1	1	1	1	1	GG05151140	150Ω
R735	1	1	1	1	1	GD05333140	33kΩ
R736	1	1	1	1	1	GD05333140	33kΩ
R737	1	1	1	1	1	GD05822140	8.2kΩ
R738	1	1	1	1	1	GD05822140	8.2kΩ

REF. DESIG.	QTY					PART NO.	DESCRIPTION
	U	C	N	A	P		
R739	1	1	1	1	1	GD05822140	8.2kΩ
R740	1	1	1	1	1	GD05822140	8.2kΩ
R741	1	1	1	1	1	GG05471140	470Ω
R742	1	1	1	1	1	GG05471140	470Ω
R743	1	1	1	1	1	GG05471140	470Ω
R744	1	1	1	1	1	GG05471140	470Ω
R745	1	1	1	1	1	GG05221120	220Ω ¼W
R746	1	1	1	1	1	GG05221120	220Ω ¼W
R747	1	1	1	1	1	GB05272020	2.7kΩ 2W
R748	1	1	1	1	1	GB05272020	2.7kΩ 2W
R749	1	1	1	1	1	GB05272020	2.7kΩ 2W
R750	1	1	1	1	1	GB05272020	2.7kΩ 2W
R751	1	1	1	1	1	GA05100020	10Ω 2W
R752	1	1	1	1	1	GA05100020	10Ω 2W
R753	1	1	1	1	1	GG05022120	2.2Ω ¼W
R754	1	1	1	1	1	GG05022120	2.2Ω ¼W
R755	1	1	1	1	1	GD05681140	680Ω
R756	1	1	1	1	1	GD05681140	680Ω
R757	1	1	1	1	1	GD05273140	27kΩ
R758	1	1	1	1	1	GD05273140	27kΩ
R761	1	1	1	1	1	GG05100140	10Ω
R762	1	1	1	1	1	GG05100140	10Ω
△R802	1	1	1	1	1	GA05222020	2.2kΩ 2W
R803	1	1	1	1	1	GG05182120	1.8kΩ ¼W
△R805	1	1	1	1	1	GG05271120	270Ω ¼W
△R805	1	1	1	1	1	RF05121120	120Ω ¼W
△R806	1	1	1	1	1	GG05271120	270Ω ¼W
△R806	1	1	1	1	1	RF05121120	120Ω ¼W
R807	1	1	1	1	1	GG05152140	1.5kΩ
R807	1	1	1	1	1	GD05332140	3.3kΩ
R808	1	1	1	1	1	GG05152140	1.5kΩ
R808	1	1	1	1	1	GD05332140	3.3kΩ
△R809	1	1	1	1	1	GA05820020	82Ω 2W
△R810	1	1	1	1	1	GA05390010	39Ω 1W
RN01	1	1	1	1	1	GD05471140	470Ω
RN02	1	1	1	1	1	GD05471140	470Ω
RN03	1	1	1	1	1	GD05153140	15kΩ
RN04	1	1	1	1	1	GD05394140	390kΩ
RN05	1	1	1	1	1	GD05224140	220kΩ
RN06	1	1	1	1	1	GD05154140	150kΩ
RS01	1	1	1	1	1	GD05472140	4.7kΩ
RS02	1	1	1	1	1	GD05472140	4.7kΩ
RS03	1	1	1	1	1	GD05273140	27kΩ
RS04	1	1	1	1	1	GD05273140	27kΩ
RS05	1	1	1	1	1	GD05822140	8.2kΩ
RS06	1	1	1	1	1	GD05822140	8.2kΩ
RS07	1	1	1	1	1	RM01040400	Variable 100kΩ
RS08	1	1	1	1	1	RK02040110	Variable 200kΩ
P700-SEMICONDUCTORS							
Q401	1	1	1	1	1	HC10003090	IC
Q701	1	1	1	1	1	HT107501B0	Transistor 2SA750(E)
Q702	1	1	1	1	1	HT107501B0	Transistor 2SA750(E)
Q703	1	1	1	1	1	HT107501B0	Transistor 2SA750(E)
Q704	1	1	1	1	1	HT107501B0	Transistor 2SA750(E)
Q705	1	1	1	1	1	HD20003210	Diode 1S2471
Q706	1	1	1	1	1	HD20003210	Diode 1S2471
Q707	1	1	1	1	1	HT317352E0	Transistor 2SC1775
Q708	1	1	1	1	1	HT317352E0	Transistor 2SC1775
Q709	1	1	1	1	1	HT309451P0	Transistor 2SC945(P)

• (U) for U.S.A. • (A) for Australia
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REF. DESIG.	Q'TY					PART NO.	DESCRIPTION
	U	C	N	A	P		
SS01	1	1	1	1	1	SP02030120	Push Switch
SS02	1	1	1	1	1	SS04040040	Slide Switch
S012	1	1	1	1	1	SR00030050	Rotary Switch
J801	1	1	1	1	1	YJ08000170	Jack
J801	1	1	1	1	1	YJ08000270	Jack
J802	1	1	1	1	1	YJ08000170	Jack
J802	1	1	1	1	1	YJ08000270	Jack
J803	1	1	1	1	1	YJ08000170	Jack
J803	1	1	1	1	1	YJ08000270	Jack
J804	1	1	1	1	1	YJ08000170	Jack
J804	1	1	1	1	1	YJ08000270	Jack
JV01	1	1	1	1	1	YT02060130	Terminal, RCA Jack 6P
JV02	1	1	1	1	1	YT02040260	Terminal, RCA Jack 4P
JV03	1	1	1	1	1	YT03040190	Terminal, Speaker
JV04	1	1	1	1	1	YT03040190	Terminal, Speaker
P701	1	1	1	1	1	YK208H1520	P.W. Board, Power Tr.
	1	1	1	1	1	ZZ208H1520	P.W. Board Assembly
Q729	1	1	1	1	1	HT325782B0	P701-POWER TR. CIRCUIT BOARD Transistor 2SC2578(O or Y)
PO00	1	1	1	1	1	YK208H1530	P.OO-AC. SWITCH CIRCUIT BOARD P.W. Board, AC Switch
	1	1	1	1	1	ZZ208H1530	P.W. Board Assembly
G001	1	1	1	1	1	DK18103530	P.OO-CAPACITORS Ceramic 0.01μF
G001	1	1	1	1	1	DK18103840	Ceramic 0.01μF
G001	1	1	1	1	1	DK18103850	Ceramic 0.01μF
S001	1	1	1	1	1	SP01010420	P.OO-SWITCHES Push Switch, AC Power
S001	1	1	1	1	1	SP01010390	Push Switch, AC Power
S001	1	1	1	1	1	SP01010430	Push Switch, AC Power
PT00	1	1	1	1	1	YK208H1540	PT00-SP. SWITCH CIRCUIT BOARD P.W. Board, Sp. Switch
	1	1	1	1	1	ZZ208H1540	P.W. Board Assembly
RT01	1	1	1	1	1	GA05331010	PT00-RESISTORS (All Resistors are ±5% and 1W) 330Ω
RT02	1	1	1	1	1	GA05331010	330Ω
ST01	1	1	1	1	1	SP02020520	PT00-SWITCH Push Switch, Speaker
PW00	1	1	1	1	1	YK208H1550	PW00-HEAD PHONE CIRCUIT BOARD P.W. Board, Head Phone
	1	1	1	1	1	ZZ208H3310	P.W. Board Assembly
JW01	1	1	1	1	1	YJ01001400	Jack, Head Phone

REF. DESIG.	Q'TY					PART NO.	DESCRIPTION
	U	C	N	A	P		
PE01	1	1	1	1	1	WN208H3310	PE01-VOLUME CIRCUIT BOARD P.W. Board, Volume
	1	1	1	1	1	ZZ208H3310	P.W. Board Assembly
CE01	1	1	1	1	1	EA33505030	PE01-CAPACITORS Elect 3.3μF 50V
CE02	1	1	1	1	1	EA33505030	Elect 3.3μF 50V
CE03	1	1	1	1	1	EA33505030	Elect 3.3μF 50V
CE04	1	1	1	1	1	EA33505030	Elect 3.3μF 50V
CE05	1	1	1	1	1	DK16101300	Ceramic 100pF ±10%
CE06	1	1	1	1	1	DK16101300	Ceramic 100pF ±10%
CE07	1	1	1	1	1	DK16101300	Ceramic 100pF ±10%
CE08	1	1	1	1	1	DK16101300	Ceramic 100pF ±10%
CE17	1	1	1	1	1	DF16822300	Film 8200pF ±10%
CE18	1	1	1	1	1	DF16822300	Film 8200pF ±10%
CE19	1	1	1	1	1	DD15560370	Ceramic 56pF ±5%
CE20	1	1	1	1	1	DD15560370	Ceramic 56pF ±5%
CE21	1	1	1	1	1	DK18103310	Ceramic 0.01μF
CE22	1	1	1	1	1	DK18103310	Ceramic 0.01μF
CE23	1	1	1	1	1	DK18103310	Ceramic 0.01μF
RE01	1	1	1	1	1	GD05683140	PE01-RESISTORS (All Resistors are ±5% and ¼W) 68kΩ
RE02	1	1	1	1	1	GD05683140	68kΩ
RE03	1	1	1	1	1	GD05332140	3.3kΩ
RE04	1	1	1	1	1	GD05332140	3.3kΩ
RE05	1	1	1	1	1	GD05471140	470Ω
RE06	1	1	1	1	1	GD05471140	470Ω
RE07	1	1	1	1	1	GD05682140	6.8kΩ
RE08	1	1	1	1	1	GD05682140	6.8kΩ
RE09	1	1	1	1	1	GD05682140	6.8kΩ
RE10	1	1	1	1	1	GD05682140	6.8kΩ
RE21	1	1	1	1	1	GD05103140	10kΩ
RE22	1	1	1	1	1	GD05103140	10kΩ
RE23	1	1	1	1	1	GD05470140	47Ω
RE24	1	1	1	1	1	GD05470140	47Ω
QE01	1	1	1	1	1	HC10003090	PE01-SEMICONDUCTORS IC 4558D
QE02	1	1	1	1	1	HC10003090	IC 4558D
PE02	1	1	1	1	1	WN208H3320	PE02-CONNECTION CIRCUIT BOARD P.W. Board, Connection
PE03	1	1	1	1	1	WN208H3330	PE03-TONE AMP CIRCUIT BOARD P.W. Board, Tone Amp
	1	1	1	1	1	ZZ208H3330	P.W. Board Assembly
CE09	1	1	1	1	1	DF16222300	PE03-CAPACITORS Film 2200pF ±10%
CE10	1	1	1	1	1	DF16222300	Film 2200pF ±10%
CE11	1	1	1	1	1	DF16562300	Film 5600pF ±10%
CE12	1	1	1	1	1	DF16562300	Film 5600pF ±10%
CE13	1	1	1	1	1	DF16183300	Film 0.018μF ±10%
CE14	1	1	1	1	1	DF16183300	Film 0.018μF ±10%
CE15	1	1	1	1	1	DF16183300	Film 0.018μF ±10%
CE16	1	1	1	1	1	DF16183300	Film 0.018μF ±10%

• (U) for U.S.A. • (A) for Australia
• (C) for Canada • (P) for PX
• (N) for Europe

REF. DESIG.	Q'TY					PART NO.	DESCRIPTION
	U	C	N	A	P		
RE11	1	1	1	1	1	GD05562140	PE03-RESISTORS (All Resistors are ±5% and ¼W) 5.6kΩ
RE12	1	1	1	1	1	GD05562140	5.6kΩ
RE13	1	1	1	1	1	GD05562140	5.6kΩ
RE14	1	1	1	1	1	GD05562140	5.6kΩ
RE15	1	1	1	1	1	GD05223140	22kΩ
RE16	1	1	1	1	1	GD05223140	22kΩ
RE17	1	1	1	1	1	GD05223140	22kΩ
RE18	1	1	1	1	1	GD05223140	22kΩ
RE19	1	1	1	1	1	GD05223140	22kΩ
RE20	1	1	1	1	1	GD05223140	22kΩ
RE25	1	1	1	1	1	RS01040150	Variable 100kΩ (B)
RE26	1	1	1	1	1	RS01040150	Variable 100kΩ (B)
RE27	1	1	1	1	1	RS01040150	Variable 100kΩ (B)
PX01	1	1	1	1	1	WN207H3210	PX01-LED LEVEL METER DRIVE CIRCUIT BOARD P.W. Board, LED Level Meter Drive
	1	1	1	1	1	ZZ207H3210	P.W. Board Assembly
CX01	1	1	1	1	1	EA33505030	PX01-CAPACITORS Elect 3.3μF 50V
CX02	1	1	1	1	1	EA33505030	Elect 3.3μF 50V
CX03	1	1	1	1	1	EA10505030	Elect 1μF 50V
CX04	1	1	1	1	1	EA10505030	Elect 1μF 50V
CX05	1	1	1	1	1	DF16103300	Film 0.01μF ±10%
CX06	1	1	1	1	1	DF16103300	Film 0.01μF ±10%
RX01	1	1	1	1	1	GD05103140	PX01-RESISTORS (All Resistors are ±5% and ¼W) 10kΩ
RX02	1	1	1	1	1	GD05103140	10kΩ
RX03	1	1	1	1	1	GD05104140	100kΩ
RX04	1	1	1	1	1	GD05104140	100kΩ
RX07	1	1	1	1	1	RA02030060	Trimming 20kΩ
RX08	1	1	1	1	1	RA02030060	Trimming 20kΩ
RX25	1	1	1	1	1	GD05563140	56kΩ
RX26	1	1	1	1	1	GD05563140	56kΩ
RX27	1	1	1	1	1	GD05333140	33kΩ
RX28	1	1	1	1	1	GD05333140	33kΩ
QX01	1	1	1	1	1	HD30076090	PX01-SEMICONDUCTORS Zener WZ038
QX02	1	1	1	1	1	HD30076090	Zener WZ038
QX03	1	1	1	1	1	HD20001210	Diode 1S2473
QX04	1	1	1	1	1	HD20001210	Diode 1S2473
QX05	1	1	1	1	1	HC10008370	IC TL489C
QX06	1	1	1	1	1	HC10008370	IC TL489C
QX07	1	1	1	1	1	HC10019020	IC AN6552
QX21	1	1	1	1	1	HD20001210	Diode 1S2473
QX22	1	1	1	1	1	HD20001210	Diode 1S2473

REF. DESIG.	Q'TY					PART NO.	DESCRIPTION
	U	C	N	A	P		
JX01	1	1	1	1	1	YJ07000750	PX01-MISCELLANEOUS Jack, 4P
JX02	1	1	1	1	1	YJ07000760	Jack, 2P
PX02	1	1	1	1	1	WN207H3220	PX02-LED LEVEL METER CIRCUIT BOARD P.W. Board, LED Level Meter
	1	1	1	1	1	ZZ207H3220	P.W. Board Assembly
RX10	1	1	1	1	1	GD05181140	PX02-CAPACITORS (All Resistors are ±5% and ¼W) 180Ω
RX11	1	1	1	1	1	GD05561140	560Ω
RX12	1	1	1	1	1	GD05561140	560Ω
RX13	1	1	1	1	1	GD05561140	560Ω
RX14	1	1	1	1	1	GD05561140	560Ω
RX15	1	1	1	1	1	GD05561140	560Ω
RX16	1	1	1	1	1	GD05561140	560Ω
RX17	1	1	1	1	1	GD05561140	560Ω
RX18	1	1	1	1	1	GD05561140	560Ω
RX19	1	1	1	1	1	GD05561140	560Ω
RX20	1	1	1	1	1	GD05561140	560Ω
QX08	1	1	1	1	1	HI10006320	PX02-SEMICONDUCTORS L.E.D. GL-9NG9
QX09	1	1	1	1	1	HI10007320	L.E.D. GL-9PR9
QX10	1	1	1	1	1	HI10007320	L.E.D. GL-9PR9
QX11	1	1	1	1	1	HI10007320	L.E.D. GL-9PR9
QX12	1	1	1	1	1	HI10007320	L.E.D. GL-9PR9
QX13	1	1	1	1	1	HI10007320	L.E.D. GL-9PR9
QX14	1	1	1	1	1	HI10007320	L.E.D. GL-9PR9
QX15	1	1	1	1	1	HI10007320	L.E.D. GL-9PR9
QX16	1	1	1	1	1	HI10007320	L.E.D. GL-9PR9
QX17	1	1	1	1	1	HI10007320	L.E.D. GL-9PR9
QX18	1	1	1	1	1	HI10007320	L.E.D. GL-9PR9
(W01-99)						Assembly and Wiring	
(T01-99)						Adjustment	
(X01-00)						Correction	

14. TECHNICAL SPECIFICATIONS

AUDIO SECTION

POWER OUTPUT, DIN, 4 OHM, PER CHANNEL	51 W
POWER OUTPUT, RMS 1kHz 4 OHM, PER CHANNEL	48 W
POWER OUTPUT, DIN, 8 OHM, PER CHANNEL	40 W
POWER OUTPUT, RMS 1kHz 8 OHM, PER CHANNEL	38 W
TOTAL HARMONIC DISTORTION AT RATED POWER OUTPUT	0.05%
I.M. DISTORTION AT RATED POWER OUTPUT (250 Hz AND 8 kHz MIXED, AMPLITUDE RATIO 4:1)	0.04%
POWER BANDWIDTH	10 Hz ~ 30 kHz
DAMPING FACTOR 8 OHM	60

Frequency Response

Phono (RIAA)	±1.0 dB
Aux (±1 dB)	10 Hz ~ 60 kHz

Signal-to-Noise Ratio (IHF-A Network)

Phono (MM)	77 dB
Aux	98 dB

Input Terminals

Phono:	Input Impedance	47k ohms
	Input Capacitance	250 pF
	Overload Margin	33 dB
	Input Sensitivity	2.8 mV
Aux:	Input Impedance	25k ohms
	Input Sensitivity	150 mV
phono	Equivalent Input Noise	0.5 µV
Phono	Dynamic Range (Ratio of input overload to equivalent input noise)	100 dB
Channel Balance (0 to -40 dB/40 Hz ~ 16 kHz)		
Phono		2.0 dB
Aux		2.0 dB
Output Voltage, 1 kHz		
Tape Out		415 mV
Output Impedance, 1 kHz		
Tape Out		220 ohms

GENERAL

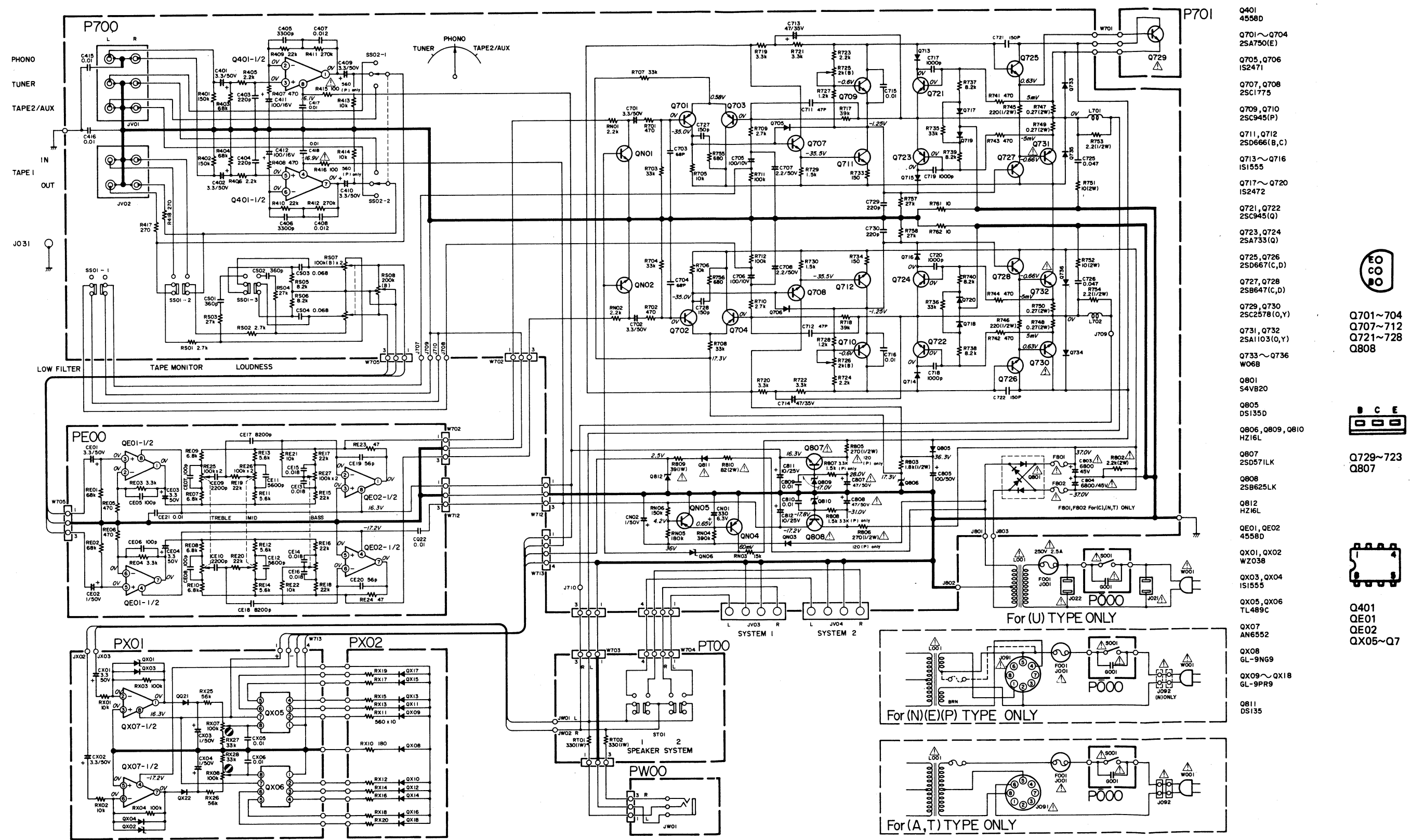
Power Requirements	220 V AC, 50 Hz (N version is featuring an external voltage selector for use on 110V. Other versions can be converted by a qualified technician to operate on 240V.)
Power Consumption at Rated Output, both Channels Driven	145 W
Idling Power	18 W
Semiconductor Complement	
Transistors	29
Diodes	22
Integrated Circuits	6
Dimensions	
Panel Width	416 mm
Panel Height	73 mm
Depth	302 mm
Weight	
Unit Alone	5.2 kg

Specifications and appearance are subject to change for modification without notice.

Note

15. SCHEMATIC DIAGRAM

MODEL PM350



Components and wiring are subject to change for modification without notice.

NOTE ON SAFETY:
The parts marked with Δ are important parts on the safety. Please use the parts having the designated parts numbers without fail.